

REMARKS/ARGUMENTS

Request for Continued Examination:

The applicant respectfully requests continued examination of the above-indicated application as per 37 CFR 1.114.

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1. Rejection of claims 1-4 and 6-22 under 35 U.S.C 112 as failing to comply with the enablement requirement:

Response:

10 The limitation “wherein the electrostatic chuck is separated from the conducting layer before carrying the wafer” has been deleted from claims 1 and 12.

Claim 21 has been amended to overcome this rejection. Specifically, claim 21 is revised to be dependent on claim 20, instead of claim 12.

15 Claim 22 has been cancelled.

As a result, consideration of claims 1-4 and 6-21 is politely requested.

2. Rejection of claims 1-3, 6-8, 10-14, 16-18 and 20-22 under 35 U.S.C. 103(a) as 20 being unpatentable over Ledger et al. (US 5,515,167) in view of Strasbaugh et al. (US 2003/0134578):

Response:

Claim 1:

25 Claim 1 has been amended to overcome this rejection. Specifically, the limitation “the conducting layer of the wafer carrier is attracted to an electrostatic chuck via electrostatic force” has been added to claim 1. Using electrostatic force to attract conducting material is the inherent function of electrostatic chuck, and that is why it is called **electrostatic** chuck. As set forth in MPEP 2163.07(a): “[b]y disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily

discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter. *In re Reynolds*, 443 F.2d 384, 170 USPQ 94 (CCPA 1971); *In re Smythe*, 480 F. 2d 1376, 178 USPQ 279 (CCPA 1973)". The descriptions "the conducting layer 54 can be attracted by an E chuck 58 so that the wafer 70 and the wafer carrier 50 are delivered among different apparatuses" recited in [0018] and "the E chuck 58 then attracts the conducting layer 54, and delivers the wafer carrier 50 and the wafer 70 to different apparatuses for performing the back side process" recited in [0019] may not explicitly describe the 5 attraction is carried out by electrostatic force, but this limitation is the inherent function of electrostatic chuck. Therefore, no new matter is introduced by this 10 amendment, and acceptance of this amendment is politely requested.

Claim 1 is patently distinct from the cited arts for the following reasons:

15 First, as claimed in claim 1, the conducting layer is attracted to the electrostatic chuck via electrostatic force. The electrostatic attraction between the conducting layer and the electrostatic chuck is temporary. On the other hand, the conductive film 32 of Ledger is coated on the membrane 34 in advance, and the membrane 34 and the conductive film 32 are then together cemented to the chuck 24 using optical cement (col. 5, lines 30-32, 41-45). The adhesion between the conductive film 32 and the substrate of the chuck 24 is different from electrostatic attraction, which can be easily withdrawn. In addition, Ledger does not teach using electrostatic force to attract the 20 conductive film 32. In Ledger's col. 5, lines 5-7, Fig. 3, he teaches "biasing the EC layer 32 at voltages up to about 1KV with the wafer 14 grounded causes the wafer 14 to be pulled against the chuck 24 surface 40 by electrostatic force". However, the 25 surface 40 (as shown in Fig. 3) is the surface and the membrane 34, not the surface the chuck 24. Therefore, Ledger teaches using electrostatic force to attract the wafer 14, but not to attract the conductive film 32. Electrostatic attraction and cement 30 adhesion are completely different types of bonding mechanisms.

Second, Ledger teaches attracting the wafer 14 by pulling the wafer 14 against the surface 40 of the membrane 34 using electrostatic chuck, and fails to teach using a bonding layer to adhere the wafer 14 and the membrane 34. Using the bonding layer in Ledger's electrostatic chuck to adhere the wafer may provide secure support, but it also change the principle of operation of Ledger's electrostatic chuck. As set forth in MPEP 2143.02 VI: “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)(Claims were directed to an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient sealing member. The primary reference relied upon in a rejection based on a combination of references disclosed an oil seal wherein the bore engaging portion was reinforced by a cylindrical sheet metal casing. Patentee taught the device required rigidity for operation, whereas the claimed invention required resiliency. The court reversed the rejection holding the “suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate” 270 F.2d at 813, 123 USPQ at 352.). Using the bonding layer in Ledger's electrostatic chuck would require a substantial reconstruction and redesign as well as the change of the principle under which the electrostatic chuck is designed to operate.

As a result, claim 1 is patentably distinct from Ledger in view of Strasbaugh, and should be allowed. Reconsideration of claim 1 is politely requested.

Claim 2-3, 6-8, and 10-11:

Claims 2-3, 6-8, and 10-11 are dependent on claim 1, and should be allowed if claim 1 is found allowable. Reconsideration of claims 2-3, 6-8, and 10-11 is therefore requested.

Claim 12:

Claim 12 is amended to overcome this rejection. Specifically, the limitation “the conducting layer of the wafer carrier is attracted to an electrostatic chuck via electrostatic force” has been added to claim 12. Using electrostatic force to attract conducting material is the inherent function of electrostatic chuck, and that is why it is called **electrostatic** chuck. As set forth in MPEP 2163.07(a): “[b]y disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter. *In re Reynolds*, 443 F.2d 384, 170 USPQ 94 (CCPA 1971); *In re Smythe*, 480 F. 2d 1376, 178 USPQ 279 (CCPA 1973)”. Therefore, the descriptions “the conducting layer 54 can be attracted by an E chuck 58 so that the wafer 70 and the wafer carrier 50 are delivered among different apparatuses” recited in [0018] and “the E chuck 58 then attracts the conducting layer 54, and delivers the wafer carrier 50 and the wafer 70 to different apparatuses for performing the back side process” recited in [0019] may not explicitly describe the attraction is carried out by electrostatic force, this limitation is the inherent function of electrostatic chuck. Therefore, no new matter is introduced by this amendment, and acceptance of this amendment is politely requested.

Claim 12 is patently distinct from the cited arts for the following reasons:

First, as claimed in claim 12, the conducting layer is attracted to the electrostatic chuck via electrostatic force. The electrostatic attraction between the conducting layer and the electrostatic chuck is temporary. On the other hand, the conductive film 32 of Ledger is coated on the membrane 34 in advance, and the membrane 34 and the conductive film 32 are then together cemented to the chuck 24 using optical cement (col. 5, lines 30-32, 41-45). The adhesion between the conductive film 32 and the

substrate of the chuck 24 is different from the electrostatic attraction, which can be easily withdrawn. In addition, Ledger does not teach using electrostatic force to attract the conductive film 32. In Ledger's col. 5, lines 5-7, Fig. 3, he teaches "biasing the EC layer 32 at voltages up to about 1KV with the wafer 14 grounded causes the wafer 14 to be pulled against the chuck 24 surface 40 by electrostatic force". However, the surface 40 (as shown in Fig. 3) is the surface and the membrane 34, not the surface the chuck 24. Therefore, Ledger teaches using electrostatic force to attract the wafer 14, but not to attract the conductive film 32. Electrostatic attraction and cement adhesion are completely different types of bonding mechanisms.

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Second, Ledger teaches attracting the wafer 14 by pulling the wafer 14 against the surface 40 of the membrane 34 using electrostatic chuck, and fails to teach using a bonding layer to adhere the wafer 14 and the membrane 34. Using the bonding layer in Ledger's electrostatic chuck to adhere the wafer may provide secure support, but it also change the principle of operation of Ledger's electrostatic chuck. As set forth in MPEP 2143.02 VI: "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)(Claims were directed to an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient sealing member. The primary reference relied upon in a rejection based on a combination of references disclosed an oil seal wherein the bore engaging portion was reinforced by a cylindrical sheet metal casing. Patentee taught the device required rigidity for operation, whereas the claimed invention required resiliency. The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate" 270 F.2d at 813, 123 USPQ at 352.). Using the bonding layer in Ledger's electrostatic chuck would require a substantial reconstruction and redesign as well as the change of

the principle under which the electrostatic chuck is designed to operate.

As a result, claim 12 is patentably distinct from Ledger in view of Strasbaugh, and should be allowed. Reconsideration of claim 12 is politely requested.

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Claims 13-14, 16-18, and 20-21:

Claims 13-14, 16-18, and 20-21 are dependent on claim 12, and should be allowed if claim 12 is found allowable. Reconsideration of claims 13-14, 16-18, and 20-21 is therefore requested.

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Claim 22:

Claim 22 has been cancelled.

**3. Rejection of claims 4 and 15 under 35 U.S.C. 103(a) as being unpatentable over
15 Ledger et al. in view of Strasbaugh et al. and further in view of Suzuki et al.
(US 2003/0029565):**

Response:

Claim 4:

Claim 4 is dependent on claim 1, and should be allowed if claim 1 is found
20 allowable. Reconsideration of claim 4 is therefore requested.

Claim 15:

Claim 15 is dependent on claim 12, and should be allowed if claim 12 is found
allowable. Reconsideration of claim 15 is therefore requested.

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**4. Rejection of claims 9 and 19 under 35 U.S.C. 103(a) as being unpatentable over
Ledger et al. in view of Strasbaugh et al., and further in view of Bollen et al.
(US 4,766,515):**

Response:

30 Claim 9:

Claim 9 is dependent on claim 1, and should be allowed if claim 1 is found allowable. Reconsideration of claim 9 is therefore requested.

Claim 19:

5 Claim 19 is dependent on claim 12, and should be allowed if claim 12 is found allowable. Reconsideration of claim 19 is therefore requested.

5. Rejection of claims 1, 3, 6-7, 12, 14, 16, 21-22 under 35 U.S.C 103(a) as being unpatentable over Matsunaga (US 6,166,897):

10 **Response:**

Claim 1:

Claim 1 has been amended to overcome this rejection. Specifically, the limitation “the conducting layer of the wafer carrier is attracted to an electrostatic chuck via electrostatic force” has been added to claim 1 to overcome this rejection. no new 15 matter is introduced by this amendment as explained above, and acceptance of this amendment is politely requested.

Regarding US 6,166,897, Matsunaga discloses a static chuck apparatus, but he fails to teach the limitation “the conducting layer of the wafer carrier is attracted to an electrostatic chuck via electrostatic force”. The first adhesive layer 14 (which the Examiner interprets as the conducting layer of the present application) is not conductive, but an insulating layer with excellent insulating property (col. 3, lines 20 52-53). The first adhesive layer 14 made of insulating material is **not** attracted to the metal substrate of the static chuck via electrostatic force. Since Matsunaga fails to teach or suggest this limitation, claim 1 should be patentably distinct. Reconsideration 25 of claim 1 is politely requested.

Claim 3 and 6-7:

Claims 3 and 6-7 are dependent on claim 1, and should be allowed if claim 1 is 30 found allowable. Reconsideration of claims 3 and 6-7 is therefore requested.

Claim 12:

Claim 12 has been amended to overcome this rejection. Specifically, the limitation “the conducting layer of the wafer carrier is attracted to an electrostatic chuck via electrostatic force” has been added to claim 12 to overcome this rejection. no new matter is introduced by this amendment as explained above, and acceptance of this amendment is politely requested.

Regarding US 6,166,897, Matsunaga discloses a static chuck apparatus, but he fails to teach the limitation “the conducting layer of the wafer carrier is attracted to an electrostatic chuck via electrostatic force”. The first adhesive layer 14 (which the Examiner interprets as the conducting layer of the present application) is not conductive, but an insulating layer with excellent insulating property (col. 3, lines 52-53). The first adhesive layer 14 made of insulating material is **not** attracted to the metal substrate of the static chuck via electrostatic force. Since Matsunaga fails to teach or suggest this limitation, claim 12 should be patentably distinct. Reconsideration of claim 12 is politely requested.

Claim 14, 16 and 21:

Claims 14, 16 and 21 are dependent on claim 12, and should be allowed if claim 12 is found allowable. Reconsideration of claims 14, 16 and 21 is therefore requested.

Claim 22:

Claim 22 has been cancelled.

6. Amendment to the title of the invention:

The title of the invention has been amended to “WAFER CARRIER” as per the Examiner’s suggestion.

Applicant respectfully requests that a timely Notice of Allowance be issued in

this case.

Sincerely yours,

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Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)